

XVI REPORT ON A SMALL COLLECTION OF LIZARDS FROM TRAVANCORE.

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The lizards noticed or described in the following paper were collected during a trip undertaken in November, 1908, in conjunction with the Trivandrum Museum. I have to thank Lieut.-Col. F. W. Dawson, Director of that institution, for permitting Mr. R. S. N. Pillay, his chief assistant, to accompany me, and also for much other assistance. Unfortunately we had no time to visit the high mountains in the northern part of the State; but after travelling by boat down the "backwaters" from Cochin to the neighbourhood of Quilon (whence we made a detour to visit the large fresh-water lake at Shasthancottah) and thence to Trivandrum, we returned along the high road at the base of the Western Ghats to Tenmalai on the western side of that range, which we crossed by rail to Shencottah on the frontier of the Tinnevelly District of the Madras Presidency. Small though the collection of lizards is that we made, it throws light on some interesting problems of distribution and biology as well as including specimens of a species not previously described.

1. *Gonatodes ornatus*.

A young specimen from under a stone by the roadside, near Kulattupuzha.

The young of this lizard are much darker than the adults, the sides, limbs, ventral surface, iris, and top of the head being dark chocolate-brown. A narrow white line extends from each nostril through the upper part of the eye to the back of the neck, where it nearly meets its fellow; from this point a broad greyish band, mottled with brown, stretches along the back, becoming obscure on the tail.

2. *Gonatodes kandianus*.

A small specimen taken at the base of a tree-trunk, beside a stream at Tenmalai, in the Western Ghats.

3. *Hemidactylus brookii*.

This is the common house lizard in the extreme south of India, in which *H. flaviviridis* appears to be rare.

It is well known that *H. brookii* possesses considerable power of temporary colour change in accordance with the amount of

direct and reflected light that falls upon it; but this change consists mainly, if not entirely, in the temporary disappearance and appearance of much of the dark pigment of the integument, owing presumably to contraction of the pigment cells. Another kind of change, however, also occurs, as was very clearly demonstrated by certain specimens taken at Shasthancottah. Some of these were captured on the whitewashed wall of a bungalow and appeared to be incapable of becoming very dark on the dorsal surface even in a dark environment. The ventral surface was always white. Other specimens taken at the same place under black stones were darker on the dorsal surface, and still remain so after six months in spirit. Their ventral surface, moreover, is dotted with dark pigment. These specimens would seem to prove that habitual living in dark surroundings produces an actual and more or less permanent increase of pigment, not merely a temporary expansion of the pigment cells.

Eggs of *H. brookii* were common under stones at Shasthancottah in November.

4. *Hemidactylus leschenaultii*.

Apparently much commoner in S. India than in Bengal. I took a specimen on the outer wall of a bungalow at Shencottah on the Madras frontier of Travancore, but have never seen one indoors.

5. *Draco dussumieri*.

Common about ten miles north of Trivandrum, but apparently very local. One of my men saw one in the jungle near Kulattupuzha, at the base of the Western Ghats.

6. *Otocryptis beddomii*.

Mr. Pillay took several specimens at Aryankavu, below the western slopes of the Western Ghats.

7. *Calotes versicolor*.

This widely distributed species is common in the plains of Travancore, and ascends the Western Ghats to an altitude of at least 3,000 feet. The examination of many living specimens from S. India, from the Western Ghats in the Bombay Presidency, and from various parts of the Himalayas and Bengal, has forced me again to reconsider the question of the differences between the typical form of this species and that called by Blyth *Calotes gigas*. As I have found a certain number of specimens which it is impossible to refer with certainty to one of these forms rather than the other, it seems to be impossible to regard them as distinct species, and I am forced to fall back on my original view (*Journ. Asiat. Soc. Bengal*, 1905, p. 87), that the race which inhabits the drier parts of India at low altitudes exhibits a much greater sexual

variation than is the case of the race which occurs in Lower Bengal, the Himalayas, Assam, Burma, Malaya and Siam ; but that it is impossible to draw an exact line between the two races. *Calotes versicolor* occurs not only all over the plains of India, but all along the Himalayas as well as on isolated hills. It is common in the Darjiling district and in Nepal and Kumaon up to an altitude of over 6,000 feet, but apparently not above 7,000 feet ; in the Simla district I have seen specimens near Kasauli at an altitude of 5,000 feet. Apparently, however, it does not penetrate very far into the Himalayas from the plains. On the top of Paresnath Hill in Western Bengal it is common, the height of this hill being 4,480 feet.

8. *Calotes ophiomachus.*

A small male was taken in thick jungle near Kulattupuzha at the base of the Western Ghats (west side), and was the only living specimen I saw in Travancore, although it is said not to be uncommon in that State. This individual was disturbed while digging in the ground with its fore feet, probably in search of earth-worms. Although put to flight three times at intervals between the early morning and the afternoon, it returned again and again to the same place, recommenced its digging, and was captured the fourth time it was seen. Many lizards have this habit of returning to a place whence they have been scared away.

9. *Charasia blanfordiana.*

A common species as far south as Trivandrum, and probably Cape Comorin. The furthest south that I actually saw a specimen was a few miles north of Trivandrum, but there is no geographical or faunistic separation between that locality and the extreme southern point of the Indian Peninsula. The range of this species is a peculiar one. It occurs commonly on the hills of the Hazaribagh district of Western Bengal, ascending Paresnath to the height of over 4,400 feet above sea level, and is found in many rocky localities in the centre of the Indian Peninsula ; on the western side of the Western Ghats it is common in Travancore, but whether its range extends northwards along this range into the Bombay Presidency I have been unable to ascertain. I have seen no record of its occurrence in the south of the Madras Presidency, although it is not uncommon in the northern central part. There are specimens in the Indian Museum from Ranchi, Chota Nagpur ; Paresnath, Hazaribagh district ; Chanda and Nagpur, Central Provinces ; Raipur ; the Eastern Ghats, and near Ellore, Madras, as well as those recently obtained at Maddathorai and Tenmalai in Travancore. In the high mountains to the north of Travancore it is replaced by the allied form *Ch. dorsalis*, which is essentially a mountain species.

The genus *Charasia* appears to take the place in the Indian Peninsula of the Palaearctic and Ethiopian genus *Agama*, which

extends along the Himalayas into the drier and colder parts of Nepal. *Ch. blanfordiana* is the only species of *Charasia* I have been able to observe alive. In its habits it closely resembles *Agama tuberculata*, being usually seen on rocks but occasionally entering human dwellings and running about on the walls. The male, in April and May, has the head and fore-quarters of a brilliant red colour, and displays his magnificence to the female, which remains concealed, by slowly walking along in some conspicuous position, alternately raising and nodding his head in a very solemn manner. The exact tint of the brilliant parts changes as he does so. Both sexes possess considerable powers of temporary colour change, which seem to be called into play mainly by the amount of reflected light that reaches the integument. The changes do not always assist in concealing the animal. I have seen a temporarily pale individual resting most conspicuous on a red mud wall, and another on a black rock from the surface of which the sun was reflected. On the other hand, other individuals on similar rocks and walls in the shade were much darker and less conspicuous. The fact seems to be that the number of different colours that can be brought into play by contraction or expansion of the pigment cells of this species is a very limited one. Strong reflected light causes certain of the pigment cells to contract, but does not expose others. The lizard, therefore, can become paler or darker, but cannot change its actual coloration to any great extent. Some of the pigment cells, however, are probably non-contractive, for the symmetrical markings never disappear but become more conspicuous as the general tone becomes paler. Specimens in spirit from Travancore are much blacker (*i.e.*, less brown) than specimens from Paresnath, on which the rocks are not so black as those of the Western Ghats of Travancore. It is probable, therefore, that in *Charasia* as in *Hemidactylus*, environment has more than a transitory effect on coloration.

10. *Mabuia carinata*.

Common in open country as well as in jungle at the base of the hills; often seen in pairs sunning itself on fallen tree-trunks or rocks.

11. *Lygosoma dussumieri*.

Perhaps the commonest skink in the plains of Travancore, both in open country and in jungle at the base of the hills. The form I described (*Journ. Asiatic. Soc. Bengal*, 1905, p. 145) as "var. *concolor*" is the typical female, which is not only larger and stouter than the male, but much more soberly coloured and retiring in its habits. The tail in the male is bright red, while in the female it is brownish; the white lines running along each side of the back and sides in the former sex are obsolete or obsolescent in the female; and the same is the case as regards the dark spots on the dorsal surface.

12. *Lygosoma dawsonii*, sp. nov.Subgenus *Keneuxia*.

Habit lacertiform, stout; the distance between the end of the snout and the fore limb $1\frac{1}{3}$ to $1\frac{1}{2}$ times in that between the axilla and the groin. Snout short, obtuse, not depressed; loreal region vertical; lower eyelid scaly; a small supranasal, which is widely separated from its fellow, but no postnasal present; frontonasal forming a broad suture with the rostral and with the frontal, which is at least as long as the parietals and the interparietal together; interparietals forming a long median suture; a pair of enlarged nuchals present; four superoculars, of which the second is in contact with the frontal and much larger than any of the others. Twenty-eight scales round the body; the dorsals, laterals, nuchals and the scales on the dorsal surface of the limbs with from three to seven strong keels. No enlarged præanals, but the ventrals much larger posteriorly than anteriorly. Dorsal surface blackish olive, darker in the adult than in the young; many parti-coloured black-and-white scales on the sides; a narrow pale line, more or less interrupted, extending from the superciliary region to a point above and a little behind the axilla, and another similar line from below the anterior border of the eye to the fore limb; throat of adult (in life) bright pink, more or less spotted with black.

Measurements of type specimen (Regd. No. 16170).

Total length	120 mm.
Length of head and body	58 ,,
,, ,, tail	62 ,,
,, ,, fore limb	23 ,,
,, ,, hind limb	26 ,,
,, ,, snout	4 ,,
Breadth of head	5 ,,

Habitat.—Described from an adult specimen taken at Maddathorai and from three young ones, one from Tenmalai, one from Kulattupuzha, and one from Shasthancottah, the three former places being among or at the western base of the Western Ghats, and the latter near the coast.

In some respects this species resembles the common *Mabuya carinata*, but it is a true *Lygosoma*; the coloration is very distinctive.

13. *Lygosoma albopunctatum*.

A specimen from Shasthancottah.

14. *Ristella guentheri*.

A specimen from Tenmalai, in the Western Ghats.

15. *Ristella beddomii*

A small specimen from under a stone by the roadside, near Tenmalai.